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CO0MN-C

COUNTER, FREQUENCY

1. GENERAL. This procurement requires a high accuracy microwave frequency counter with IEEE Std 488.1 bus control and data transfer capability.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL CAPABILITIES. The equipment shall be capable of measurements within the minimum ranges, specifications and accuracies detailed below.

3.1 Internal time base. Frequency: 10 MHz. Adjustment range: ±1 x 10E-6. Settability: 1 x 10E-10.

3.1.1 Aging rate. ±5 x 10E-10/day maximum.

3.1.2 Stability during power change. ±1 x 10E-7 for 10% change in line voltage.

3.1.3 Temperature-related stability. Frequency variation shall not exceed ±3 x 10E-8 over the operating temperature range.

3.1.4 Time base output. 10 MHz at 1 Vrms minimum into 50 ohms. A rear panel BNC(f) type connector shall be provided.

3.2 External standard input. The equipment shall be capable of operating with an external 10 MHz 0.5 Vrms frequency standard.

3.3 Sample rate. Variable from 100 ms to 5s and hold.

3.4 Reset. A manual reset control shall be provided to initiate a new measurement cycle regardless of sample rate control setting.

3.5 Self check. A self check function shall be provided.

3.6 Input characteristics. One high impedance and one or more low impedance inputs shall be provided. For the purposes of this description, the high impedance input will be referred to as channel A and the low impedance input(s) as channel B.

3.6.1 Frequency range. Channel A: 20 Hz to 20 MHz. Channel B: 10 MHz to 18 GHz.

3.6.2 Sensitivity.

TABLE I. Sensitivity.

Frequency Range	Minimum Sensitivity
20 Hz - 20 MHz	25 mVrms
20 MHz - 1 GHz	-20 dBm
1 - 12.4 GHz	-30 dBm
12.4 - 18 GHz	-25 dBm

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3.6.3 Input impedance. High impedance input: 1 megohm shunted by 70 pF nominal. Low impedance input: 50 ohms nominal.

3.6.4 Maximum input. Channel A: 100 Vrms with an allowable derating factor of 6 dB per octave above 1 kHz down to 3.0 Vrms. Channel B: +7 dBm.

3.6.5 Amplitude discrimination. The larger of two or more signals shall be counted when there is at least 20 dB amplitude difference between signals from 500 MHz to 18 GHz.

3.6.6 FM tolerance. Maximum deviation: 20 MHz. Maximum rate: 10 MHz.

3.7 Resolution. 1 Hz.

3.8 Measurement accuracy. ±1 count ± time base error.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Operation at 400 Hz is not required. Maximum power consumption: 100W.

4.2 Weight. 15 kg (33 lb) maximum.

4.3 Digital interface. Digital interface in accordance with MIL-T-28800.

4.4 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.